PUBLIC HEALTH

Water Pollution

and

Water Drinking

By DR. THERON C. STEARNS

Jersey City, N. J.

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It is generally admitted by scientists that in the light of present knowledge we should live 100 or 140 years as well as 70. It is a notorious fact that the same knowledge which would make this possible would eliminate a great many common diseases and ailments and make life capable of yielding the greater measure of happiness which the postponement of death and the absence of sickness implies.

The United States Government appropriates about $12,000,000 annually for the protection of plant and animal life, but not a dollar for the protection of its people in the same direction.

Men engaged in scientific pursuits have long been aware of the facts enumerated above, and in 1907 the American Association for the Advancement of Science, one of the most notable of the learned societies in this country, elected a committee of one hundred of the most prominent members to take up the questions involved in this matter, circulate the information and take steps to make available this important and valuable information.

The Publicity Committee of the Committee of One Hundred has commenced the issue of a bi-monthly magazine entitled American Health, in which the various interesting phases of this subject are treated by the most competent authorities. One dollar sent to the treasurer of he American Health League, The Title Guarantee and Trust Company, 176 Broadway, New York City, will entitle the sender to the magazine for one year, including membership in the American Health League.

The object of this movement is, first, the dissemination of knowledge concerning this subject, as above outlined; second, the organization of a Bureau of the Government, to be made a part of one of the departments of the Government, for the distribution of information on this subject and for the purpose of taking such steps as will make available to the American people this enormous fund of information.

The English physician, Jenner, when he discovered that persons who had been infected with cow-pox were practically immune from smallpox, was the first to give to mankind the means to combat a constant menace to human life. The value of this discovery is well known, and its measure can be partly estimated when we remember that one in ten had previously died, in each year from smallpox. It was more than half a century before the establishment of the Pasteur institute in Paris marked the next step in the right direction. Research work along lines connected with this subject has been most extensive in Germany and France and in these countries the practical application of the knowledge thus obtained has resulted in a material lengthening of the life

period for all ages. England, while slow in many directions, early adopted and applied the knowledge thus developed; sewage and drainage systems were increased and improved, all filth accumulations were required to be disposed of, with the result that typhus fever, a filth disease which had cost the nation many thousands of lives, was practically stamped out.

The development of bacteriology during the last quarter of the last century, and the wonderful advancement in human knowlege, have opened a field of the greatest interest and of the utmost importance. The work of the American Health League, therefore, assumes interest that must appeal to all thinking people. It is, perhaps, unfortunate that there is nothing "in it for anybody." On the contrary, it constitutes a sight draft upon the resources of a large number of scientists and professional men, who can ill afford to do the work which they are so generously contributing. The public responds, however, and the American Health League will soon number ten thousand.

In infancy we are protected by the mother's love and the mother's lore, which has been accumulating through the centuries. We proceed through childhood and youth to middle age, and then we commence a journey which leads into the valley of the shadow of death and to the grave. The writer believes that we are now in possession of knowledge which will materially lengthen the period of development and postpone the period of decay. The inevitable conclusion must be that the State should intervene with the benefits of organized knowledge; for the benefit of the health of the people, than which the State has no more tangible asset. The remarkable work

which has been done in recent years in the prevention and cure of tuberculosis is an earnest of what will be done in this larger field.

Among the interesting subjects on these lines are questions of a simple character relating to the continuous chemical processes of life. Life depending upon a continuous chemical process, is subject to the influences which affect all other continuous chemical processes. Thus the introduction of arsenic into any mixture in which a chemical process occurs tends to terminate that chemical process. Therefore the people that work in Silesia, where arsenic is handled in large quantities, die at 45. The factories which burn large quantities of coal discharge into the atmosphere such quantities of arsenic that it can be found in the grass and in the fat of grass-eating animals. It would be an economic measure to abate the smoke nuisance. The owner of a factory in Newark which was responsible for the abominable odor, which was formerly observed for miles around, told the writer that the apparatus which they were required by the Board of Health to employ had resulted in a net profit of $15 per day.

In the continuous chemical process of life, as in nearly all chemical processes, water is an important substance. It therefore follows that the quantity of water we take each day is an important matter. A child playing about the house will demand water insistently, until supplied. With education in other directions we come to learn to put off requirements to a convenient season. But every time we resist the desire to drink water we dull the sense which informs us of the need of it, and many persons at middle life lose the sense of thirst entirely, developing disease in

consequence of the abnormal reduction of the amount of water supplied to the body. Not less than three to six or more per cent. of the bodily weight of water is required in each twenty-four hours. Few people take this quantity, and all who do not do so will show the evidence of neglect in some more or less grave disease. Let any one who does not feel the sense of thirst take a half a glass of water at nine, at ten and at eleven o'clock for a few days and the sense of thirst will return, the proper amount of water will be taken, and the health will materially improve.

The questions involved here run into technical fields, hich are not so easy for the lay mind to grasp. Suffice to say that if two persons could be found in precisely similar conditions, performing mental and physical work of precisely similar character, and if one of them retained the sense of thirst, and the second followed the usual experience of delaying satisfaction of thirst from time to time until the sense of thirst is lost, the first one will continue in good health and will continue to improve by development until some of the other causes of decay intervene. The second person will begin to show the results of too little water at any period from 20 to 45 years, in the interruption of development, and the establishment of any of the more or less serious affections which are due to the inefficient performance of the functions of the various organs and the derangements of the continuous chemical processes upon which life depends, or, as physicians would say, derangements of metabolism.

While insufficient water is perhaps the commonest cause of the interruption of the normal life process, there are many other causes which

act later to produce the same result. Probably most of them are as easily avoidable as this. We shall take them up in subsequent articles, confining the matter, however, to subjects relating to features which the individual has in his own control. We shall, however, interject such information as we are able to obtain, concerning the work of the American Health League, as applied to public measures. Let it be understood that it is hoped and expected that all who can do so, will aid in every possible way in the furtherance of this important work.

Finally, it must be stated that we take water ino the body for three principal purposes. First, it is required as a solvent, forming an important ingredient of the fluids of the body in which the chemical processes of life occur, where it also acts as a diluent, or vehicle to convey substances from one part of the body to another. Second, it enters into the composition of many substances formed in the body. Third, it serves as a medium to convey from the body to the exterior the effete materials of tissue change. The effete materials of tissue change the extremelv poisonous, and must be promptly disposed of to admit of health. This cannot be accomplished unless an ample amount of water is supplied, which is equally true as to the first and second offices of water in the continuous chemical process of life.

This brings us to the consideration of potable waters, which is an equally interesting subject, and almost as important as the question of the quantity of water required in the twenty-four hours. There is the danger of polluted water, and there is the question of the mineral substances contained in it. This will be next considered.